

REMARKS

Claims 1-24 are pending in this application. By this Amendment, the specification and the drawings are amended to obviate the Office Action's objections. The specification and drawings are amended for clarification only. No new matter has been added. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

Applicants gratefully acknowledge the Office Action's indication of allowable subject matter in claims 4-6, 12-14, and 19-21. However, for the reasons set forth below, Applicants respectfully assert that all of the claims are directed to allowable subject matter and that the application is in condition for allowance.

The Office Action objects to the drawings. Fig. 3 is amended in the attached Replacement Sheet to replace "316" with --315-- and thus obviate the objection. Accordingly, Applicants respectfully request withdrawal of the objection to the drawings.

The specification is amended above to be consistent with the drawings.

The Office Action rejects, under 35 U.S.C. § 103, claims 1-3, 11, 17, and 18 over Eroz (U.S. Patent No. 6,370,669 B1) and Kim (U.S. Patent No. 6,697,986 B2 and claims 7-9, 15, 16, and 22-24 over Eroz, Kim, and Östman (U.S. Patent No. 6,738,370 B2). These rejections are respectfully traversed.

Applicants assert that none of the cited references disclose or suggest, puncturing a data stream for a first transmission to provide a set of first unpunctured trellis sections, puncturing a data stream for a second transmission to provide a set of second unpunctured trellis sections, and incremental redundancy combining the first and second transmissions of the trellises to provide non-adjacent first and second unpunctured trellis sections, as recited in independent claim 1 and similarly recited in independent claims 11 and 17.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references, when combined, must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of

success must both be found in the prior art, and not based on applicant's disclosure (MPEP 2142). The prior art must suggest the desirability of the claimed invention (MPEP 2143.01).

The Office Action erroneously claims Eroz teaches puncturing of the encoder output for first and second transmissions. To the contrary, Eroz teaches puncturing for only one transmission where $[x(t), y_0(t), y_1(t)]$ correspond to outputs from the first constituent encoder, and $[x'(t), y'_0(t), y'_1(t)]$ correspond to outputs from the second constituent encoder (for example, see Fig. 20 and col. 13 lines 50-63). Outputs from both constituent encoders are punctured by different puncturing patterns according to the desired coding rate (e.g. 4/9) and then transmitted in the same packet. Thus, Eroz does not teach puncturing for first and second transmissions.

In addition, although Eroz teaches how puncturing is performed uniformly for one transmission, the method described does not produce non-adjacent first and second unpunctured trellis sections (note: puncturing of consecutive bits in Eroz degrades performance) when the first and second transmissions are combined. For instance, with rate 4/9, Eroz teaches two puncturing patterns (see Fig. 23). Even if Pattern 1 were to be used for a first transmission and Pattern 2 is used for a second transmission, their combination does not produce non-adjacent first and second unpunctured trellis sections. Furthermore, if the same patterns are chosen for both transmissions, then the trellis sections are not orthogonal. Kim fails to make up for this deficiency because Kim does not teach incremental redundancy combining first and second transmissions of a trellises to provide non-adjacent first and second unpunctured trellis sections and there is no motivation in the references to do so. In fact, the Office Action has not cited any location in the references for the alleged motivation to combine the references. If the Office Action is alleging such motivation was well known, Applicants traverse such an allegation in accordance with MPEP § 2144.03 because Applicants assert it was not well known to incremental redundancy combine first and second transmissions of the resulting trellises from the first two claimed steps to provide non-adjacent first and second unpunctured trellis sections. Thus, none of Eroz, Kim, or the combination of both teach providing non-adjacent first and second unpunctured trellis sections.

Furthermore, although Eroz teaches how puncturing is performed uniformly for one transmission, the method described does not produce uniform patterned and non-adjacent first

and second unpunctured trellis sections (as noted above: puncturing of consecutive bits in Erooz degrades performance) when the first and second transmissions are combined, as recited in independent claim 11. For instance, with rate 4/9, Erooz teaches two puncturing patterns (see Fig. 23). Even if Pattern 1 were to be used for a first transmission and Pattern 2 is used for a second transmission, their combination does not produce uniform patterned and non-adjacent first and second unpunctured trellis sections. Furthermore, if the same patterns are chosen for both transmissions, then the trellis sections are not orthogonal. Kim fails to make up for this deficiency because Kim does not teach incremental redundancy combining first and second transmissions of a trellises to provide uniform patterned and non-adjacent first and second unpunctured trellis sections and there is no motivation in the references to do so. Thus, none of Erooz, Kim, or the combination of both teach providing non-adjacent first and second unpunctured trellis sections.

Thus, none of the cited references disclose or suggest, puncturing a data stream for a first transmission to provide a set of first unpunctured trellis sections, puncturing a data stream for a second transmission to provide a set of second unpunctured trellis sections, and incremental redundancy combining the first and second transmissions of the trellises to provide non-adjacent first and second unpunctured trellis sections, as recited in independent claim 1 and similarly recited in independent claims 11 and 17.

Therefore, Applicants respectfully submit that independent claims 1, 11, and 17 define patentable subject matter. The remaining claims depend from the independent claims and therefore also define patentable subject matter. Accordingly, Applicants respectfully request the withdrawal of the rejections under 35 U.S.C. § 103.

CONCLUSION

Based on the foregoing amendments and remarks, Applicants respectfully submit this application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-24 are earnestly solicited.

Serial No. 10/074,115

Page 21

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

The Commissioner is hereby authorized to deduct any fees arising as a result of this Amendment or any other communication from or to credit any overpayments to Deposit Account No. 50-2117.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Matthew C. Loppnow', with a long horizontal flourish extending to the right.

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Serial No. 10/074,115

Page 2

IN THE DRAWINGS:

Please correct Fig. 3 pursuant to the attached sheet.